

**TECHNICAL REVIEW AND EVALUATION  
OF APPLICATION FOR  
AIR QUALITY PERMIT NUMBER 38447**

**I. INTRODUCTION**

This Class I operating permit renewal is issued to SCA Tissue North America LLC, the Permittee, for operation of their recycle paper mill located at 1600 East Butler Avenue, Flagstaff, Arizona. This is a renewal of Permit #1000443.

At the paper mill, various grades of recycled waste paper are used as raw materials to a pulping, deinking and bleaching process. The material is then fed to one of two paper machines, dried, and then rolled for delivery to a conversion facility. Also present at the facility are two air cap hoods, fired with two natural gas burners each, and a Cleaver Brooks boiler, also fired with natural gas. The fuel fired equipment as an alternative to natural gas can use propane as fuel.

**A. Company Information**

Facility Name: SCA Tissue North America LLC

Mailing Address: 1600 East Butler Avenue  
Flagstaff, Arizona 86001.

Facility Location: 1600 East Butler Avenue  
Flagstaff, Arizona 86001.

**B. Attainment Classification**

This source is located in an attainment area for all pollutants.

**II. FACILITY DESCRIPTION**

The SCA Tissue produces bulk paper rolls which are converted at other facilities into finished consumer products such as napkins and restroom tissue. At the facility pre- and post-consumer products such as recycled office waste paper, food carton box trimmings, food carton box stock, and other grades of waste paper are used as raw materials. The raw material is called furnish. This raw material would otherwise be taken to a landfill if it were not recycled. The furnish is repulped (water is added to the furnish and materials are vigorously blended and beaten); screened and cleaned to remove waxes, dirt, and sand; and deinked and bleached with sodium hypochlorite and sodium hydrosulfite to remove printing inks prior to the manufacture of finished recycled tissue at various weights. Deinked pulp is sent to either of two paper machines located at the facility. The deinked pulp is delivered to each paper machine (either #5 or #6) where it is dewatered gravitationally and mechanically. The dewatering process occurs by applying a vacuum prior to mechanically pressing water out of the paper sheet. SCA Tissue operates one Cleaver Brooks boiler and four air cap burners. These units operate on natural gas and are equipped to use propane. The purpose of the boiler is to produce steam for the Yankee dryers and to heat the facility. The purpose of the air cap burners is to dry the processed tissue paper.

The following process descriptions are excerpted from SCA Tissue's permit application submitted in November, 2005.

### **Fiber Prep Operation**

This consists of wastepaper receiving, pulping/color stripping (deinking), screening and cleaning, floatation, and washing. In the pulping process, the waste paper is mixed with water such that the paper fiber can be separated and dispersed from certain unwanted substances such as dyes and inks. This separation occurs during the deinking operation. The cleaned fiber is stored in a chest before being sent to the paper machine for production of paper. In both the pulping and deinking processes, sodium hypochlorite is added to help strip colors from the wastepaper.

The emissions from this process are essentially the volatile organic compounds (VOC) content of the process chemical and chloroform that is generated by the use of sodium hypochlorite.

### **Paper Mill**

The paper mill operation consists of two papermaking machines supported by winding and wrapping operations. The deinked pulp that is carried by a large amount of water is applied to a forming wire where the sheet is formed and bulk dewatering occurs. The wet sheet is then pressed and further dried on steel dryer cylinders referred to as 'Yankee Dryers'. The resultant dried sheet of tissue is then wound onto a roll and wrapped for shipment.

Use of wastepaper as the primary raw material occasionally causes papermaking problems when some extraneous material remains with the deinked pulp. One of these undesirable materials is referred to as 'stickies' (essentially adhesive-type contaminants). When stickies cannot be completely removed from the deinked pulp they attach to the paper machine parts, and in large enough quantities make it impossible to produce a quality product. In order to avoid such a situation, a spray solvent is applied sparingly in conjunction with mechanical action to remove stickies from the paper machine.

During the papermaking process various other chemicals are used throughout the process. These additional chemicals are applied to the deinked stock and to the paper machine as wet strength resins, release aids, retention aids, bactericides, and other functional aids for felt cleaning and conditioning.

The emissions from the paper mill process are the VOC content from the process chemicals (a vast majority being the solvent spray) and particulate matter from the winding and wrapping operations. These emissions are presumed to be vented from various powered and unpowered exhausts in the paper mill building.

### **Combustion Units**

Both paper machines are equipped with air cap burners that are utilized to assist in drying the wet paper as it passes through the dryer sections. Paper machines #5 and #6 each have two air cap burners. The air cap burners normally use pipeline natural gas (propane as back-up) as their fuel source. Steam to the paper machine dryers and for general facility heating is supplied by a natural gas fired boiler (propane as back-up). Water quality chemicals are added to the boiler on a regular basis for preventative maintenance.

The emissions from these units are products of combustion of natural gas or propane as the case may be. The boiler products of combustion exhaust to the boiler stack. The air cap burner emissions are vented through the dryer exhaust hoods and then the exhaust stacks for the dryer hoods.

## Water Treatment

Within the papermaking operation there are two internal water clarification loops. The purpose of water clarification is to remove paper filler solids and paper fibers from the water before it is recycled back into the process. Both anionic and cationic polymers are used in these clarification processes.

A secondary pre-treatment wastewater facility is also operated to remove biological oxygen demand (BOD) and suspended solids from the water before it is discharged to the municipal wastewater treatment facility. Nutrients in the form of aqueous ammonia and phosphoric acid are used in the secondary pre-treatment operation to promote biological digestion processes. The source may use urea as a replacement for all or some of the ammonia solution as an alternative.

Emissions from this process are primarily the VOC content of the polymers used in the water loop, and a small amount of ammonia from use as a nutrient in the wastewater plant. The majority of the resultant VOC emissions from the polymers are expected to be emitted at the Dissolved Air Flotation (DAF) units. Both DAF units are inside the fiber preparation building with emissions reasonably presumed to be vented from the various powered and unpowered exhausts. The wastewater treatment facility is outside so its ammonia emissions are reasonably assumed to be fugitive. (6-4)

## Ancillary Processes

The only calculable emission source in this category of miscellaneous facility support items are the storage tank emission from the 600 gallon solvent storage tank, the 8500 gallon aqueous ammonia storage tank, and the 5000 gallon phosphoric acid storage tank. These emissions would occur at tank vents as a result of displacement of the headspace during loading of the tanks.

## III. EMISSIONS

The facility is classified as a Major Source pursuant to A.A.C. R18-2-302.B.2.a (iii). The source will limit the usage of solvent spray to 28,800 gallons per year and 584,000 gallons per year of sodium hypochlorite. These limits contain the emission of VOCs below 250 tons per year and of chloroform below 10 tons per year. This usage limit has been calculated based on the consumption of these chemicals in the past year with twenty percent increase.

Facility-wide emissions at the source are provided in the Table 1 below.

Table 1: Facility wide Emissions

Pollutant	Emissions, TPY
PM <sub>10</sub>	19.00
SO <sub>2</sub>	1.10
NO <sub>x</sub>	54.00
CO	46.00
VOC	133.00
HAPs	12.10
Chloroform	5.50
Lead	.00027
Sulphuric Acid	0.46

#### IV. COMPLIANCE HISTORY

There is only one Air Quality case associated with this facility which was initiated in 2005.

The permit violation was for non-compliance of **Permit Number 24668, Attachment A; Section VII.A- Permittee shall submit a compliance certification to the Director twice each year, which describes the compliance status of the source with respect to each permit condition. The first certification shall be submitted no later than April 15<sup>th</sup>, and shall report the compliance status of the source during the period between September 16<sup>th</sup> of the previous year, and March 15<sup>th</sup> of the current year. The second certification shall be submitted no later than October 15<sup>th</sup>, and shall report the compliance status of the source during the period between March 16<sup>th</sup> and September 15<sup>th</sup> of the current year.**

The citation factual description indicated that this facility failed to submit two semi-annual compliance certifications for March 16, 2004 through September 15, 2004 and September 16, 2004 through March 15, 2005 as stipulated in Permit No. 24668.

The facility provided the required compliance certifications on September 6, 2005 and the case was closed on September 13, 2005.

#### V. AIR POLLUTION CONTROL DEVICES

There are no air pollution control devices at the facility.

#### VI. APPLICABLE REGULATIONS

Table 2: Verification of Applicable Regulations

Process Equipment	Control Equipment	Year of Manufacture	Applicable Regulations
Facility wide equipment except fuel burning equipment	None		Arizona Administrative Code (AAC) R 18-2-730.A, B, D, F, and G - Standards of Performance for Unclassified Sources
Paper Machine #5, Air Cap Burners #1 and #2 and Paper Machine #6, Air Cap Burners #1 and #2.	None	1990, 2003	Arizona Administrative Code (AAC) R 18-2-730 - Standards of Performance for Unclassified Sources
Cleaver Brooks Boiler	None	1998	40 CFR 60.40c, Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units

#### VII. PREVIOUS PERMITS AND CONDITIONS

Table 3: Previous Permits

Permit #	Issue Date	Application Basis
1000443	May 30, 2001	Title V Operating Permit

Table 4: Previous Permit Conditions

**Permit #1000443**

Permit Condition #	Determination				Comments
	Delete	Keep	Revise	Streamline	
Att. A			x		General Provisions - Revised to represent most recent permitting language
Att. B.I				x	This has been stream-lined.
Att. B.II			x		This has been renumbered as Att. B III. Voluntarily Accepted Limits have been placed in new Att. B.II.
Att. B.III		x			This has been renumbered as Att. B IV.
Att. B.IV		x			This has been renumbered as Att. B V.
Att. B.V			x		This has been renumbered as Att. B VI. Revised to represent most recent permitting language.
Att. B.VI			x		This has been renumbered as Att. B VII. Revised to represent most recent permitting language.
Att. B.VII			x		This has been renumbered as Att. B VIII. Revised to represent most recent permitting language.

**VIII. PERIODIC MONITORING REQUIREMENTS**

**A. PM and Opacity monitoring**

1. By way of engineering calculations, it can be reasonably presumed that particulate emissions from process sources will be very minimal and well below the applicable emission limitation. Consequently, no specific monitoring plan is set up for the process sources in the facility. Storage and raw material handling areas and traffic within the facility are expected to be minimal sources of air emissions and are not subject to periodic monitoring requirements.
2. Fuel burning equipment in the facility will be fired with natural gas or propane. Opacity and PM emissions are not anticipated with the burning of these fuels. Consequently, no specific monitoring plan is set up for fuel burning equipment.

**B. Sulfur Dioxide monitoring**

A.A.C. R18-2-730.A.2 sets a sulfur dioxide emission limitation of 600 ppm for all unclassified sources. The pulpers and the paper machine air cap burners in the facility are subject to this requirement. By computing the air flow and making mass rate determinations, the 600 ppm limit translates into a 165 lb/hr limit for the pulpers and a 100 lb/hr limit for the paper machine air cap burners. From review of SCA Tissue's Title V application, it is apparent that the sulfur dioxide emissions from the pulpers and the paper machine air cap burners are very minimal (approximately 0.007 lb/hr and 0.04 lb/hr respectively). Consequently, no specific monitoring plan is specified for these equipment.

**C. Nitrogen Oxides Monitoring**

A.A.C. R18-2-730.A.3 sets a nitrogen oxides emission limitation of 500 ppm for all unclassified sources. The paper machine air cap burners in the facility are subject to this requirement. By computing the air flow and making mass rate determinations, the 500 ppm limit translates into a 85 lb/hr limit for the paper machine air cap burners. From review of SCA Tissue's Title V application, it is apparent that the nitrogen oxides emissions from the paper machine air cap burners are very minimal (approximately 6 lb/hr). Consequently, no specific monitoring plan is specified for these equipment.

**D. Solvent Usage Monitoring**

The facility wide PTE total for VOC's is 133 tpy. This VOC emission estimate is based on conservative material balance calculations where all of the VOC components in the solvents are expected to be released into the atmosphere. The facility is voluntarily accepting a rolling twelve month total limit on the usage of solvent spray in the paper machine maintenance area at 28,800 gallons. This solvent spray usage limit for the paper machine maintenance area has an effect of limiting VOC emissions from paper machine maintenance activities at 94 tpy. This limitation coupled with the fact that emissions from all other sources in the facility are computed at maximum loading rates lends credence to the belief that facility wide VOC emissions will be well below 250 tpy.

Permittee is required to monitor solvent usage on weekly basis. At the end of every month, Permittee is required to update monthly and rolling twelve month totals of solvent usage and associated VOC emissions. At the time that the semi-annual compliance certifications are due, Permittee is required to submit reports of the twelve month totals of solvent usage and VOC emission estimates corresponding to that solvent usage.

**E. Hypochlorite Usage Monitoring**

The facility wide PTE total for chloroform is 5.5 tons per year. Chloroform emission occurs from the three pulpers and washer in the fiber prep section. Permittee has accepted limit on the usage of Sodium Hypochlorite to stay below the major source level of chloroform below 10 tons per year.

Permittee is required to monitor sodium hypochlorite usage on weekly basis. At the end of every month, Permittee is required to update monthly and rolling twelve month totals of sodium hypochlorite usage and associated chloroform emissions. At the time that the semi-annual compliance certifications are due, Permittee is required to submit reports of the twelve month totals of sodium hypochlorite usage and chloroform emission estimates.

**F. Fugitive Dust Monitoring**

Permittee is required to conduct quarterly certified Method 9 survey of visible emissions from the fugitive dust sources.

## **IX. TESTING REQUIREMENTS**

The uncontrolled particulate matter, sulfur dioxide, and nitrogen oxide emissions from the process sources in the facility are expected to be a fraction of the allowable. So, performance testing is not required for any of the process equipment.